

698.1 Hydrex

WAR 28-120

Dampproofing Walls

Above and Below Grade

Acidproofing and Waterproofing Floors



THE HYDREX FELT AND ENGINEERING CO.

*Manufacturers of
Waterproof Felt, Building Papers, Deadening Felts, Roofings, Paints, etc.*

*Specialists in
Structural Waterproofing, Insulation and Soundproofing*

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This Pamphlet Treats Chiefly of Two Methods of Dampproofing Walls:

Method No. 1 is used principally *above* grade. It consists of the use of Hydrex Dampproofing Paint as a bonding and dampproof coating on brick walls to which plaster is to be directly applied, and also on hollow tile walls which are to be stuccoed. This paint is also an excellent dampproofing for the *exterior* surface of walls below grade.

Method No. 2 is used principally *below* grade. It consists of first applying a coat of Hydrex Waterproof Primer, and then, over the primer, a coating of Hydrex Compound applied *hot*.

Method No. 1

Hydrex Dampproofing Paint

Hydrex Dampproofing Paint is a heavy bodied, black paint applied cold with a brush. It consists of a *pure mineral* base, with a solvent which is very volatile and exceedingly penetrating. It is much heavier bodied than the average dampproofing paint, and forms a thick, durable protective coating. It is a quick dryer, drying in less than half an hour.



Applying Hydrex Paint as a Bonding and Dampproofing Coat Under Plaster

Dampproofing Under Plaster

Hydrex Dampproof Paint forms a thick, tenacious, impervious coating to which plaster firmly bonds. For the best results, two coats should be used, and be thoroughly brushed into the pores of the brick, so that the surface presents a uniform black appear-

ance. The paint should be applied at least twenty-four hours before plastering. As a dampproofing for the interior surface of exterior brick walls above grade, Hydrex Dampproofing Paint is unexcelled. Plaster firmly bonds to it.

SPECIFICATION: All brick surfaces to which plaster is to be directly applied shall be given two coats of Hydrex Dampproofing Paint (made by the Hydrex Felt and Engineering Co., New York).

The material is to be used without thinning or adulteration, and care shall be taken to get the coating continuous and covering every part, so as to leave no uncovered spaces or spots. Carry the coating into window jambs and all pipe or other chases, behind cornices and back of all wood grounds.



Girard College High School, Philadelphia. Interior Surface of Walls above Grade Dampproofed with Hydrex Paint before Plastering

Dampproofing Hollow Tile Walls Before Stuccoing

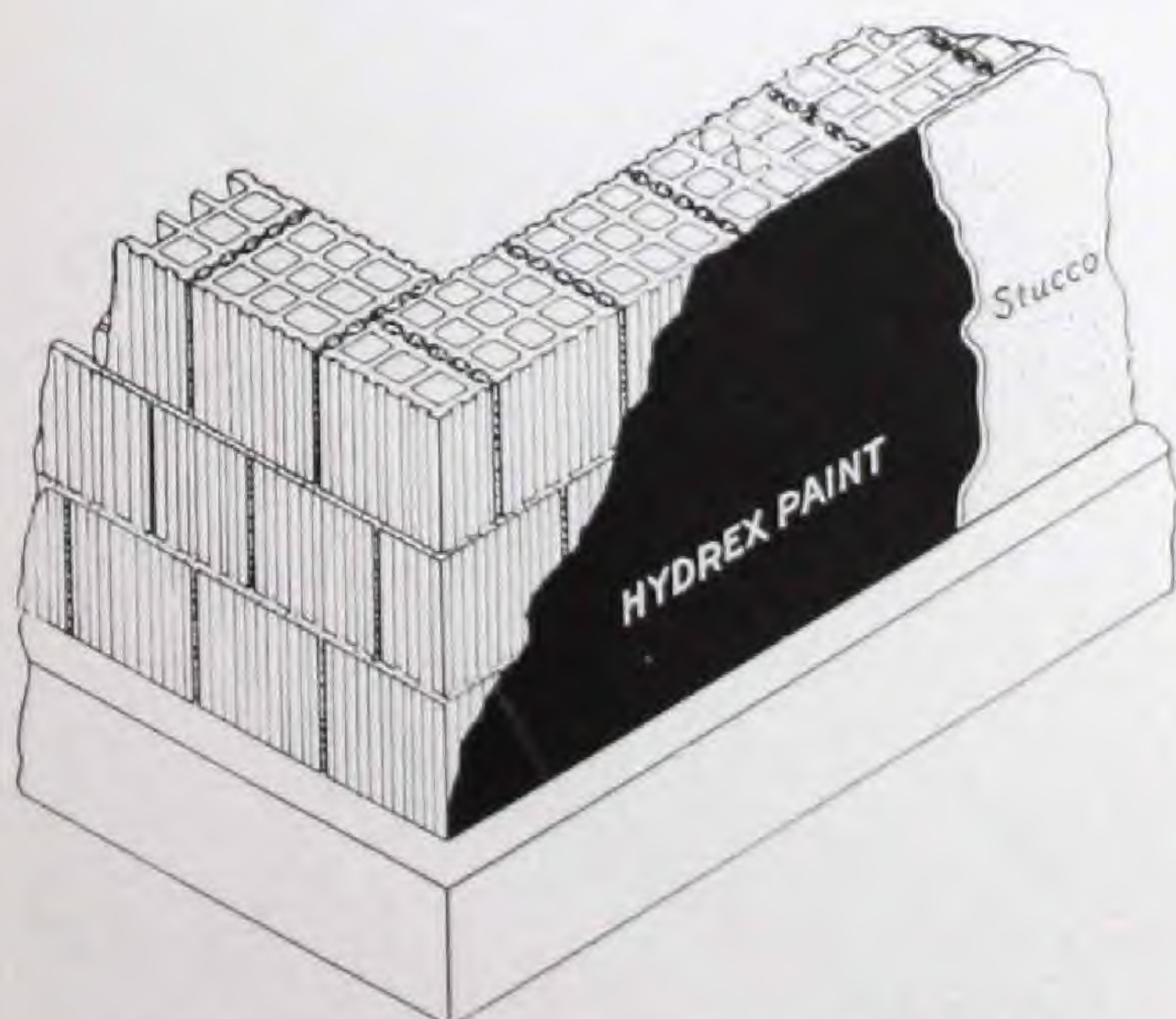
Hollow tile walls are given one or two coats of Hydrex Dampproofing Paint on the exterior surface, to make the tile impervious, especially at the joints. This prevents water from working its way through the joints of the tile, affecting the plaster and ruining the wall paper and decorations. Coating only the joints between the tile with Hydrex Dampproofing Paint would help to prevent this, but it is better to paint the entire wall.

Even if such walls are furred (which should always be done notwithstanding recommendations to the contrary) it is desirable that the terra cotta tile be coated with Hydrex Dampproofing Paint. In the event, however, of the walls not being furred, painting the walls is almost imperative.

The paint should be applied at least twenty-four hours before the stucco. It should be remembered that stucco and plaster will not stick to all paints. To Hydrex Dampproofing Paint stucco and plaster will tightly bond when the paint is properly applied on *dry* hollow tile or brick surfaces.

SPECIFICATION: All terra cotta surfaces to be stuccoed shall be given two coats of Hydrex Dampproofing Paint (made by the Hydrex Felt and Engineering Co., New York).

The surface shall be thoroughly *dry* before the application of the paint. The paint should be applied at least



Hydrex Paint used for Dampproofing Exterior of Hollow Tile Walls before Stuccoing



*Back of Bridge Abutment painted with two coats of Hydrex Paint
Penna. R.R. and N. Y., N. H. & H. R.R.
(N. Y. Connecting R.R. Co.)*

twenty-four hours before the stucco, and shall be thoroughly brushed into the pores of the tile, so as to leave no uncoated spots or spaces.

Dampproofing Concrete Surfaces

Hydrex Dampproofing Paint has been widely used by the U. S. Government, especially the Engineer Corps of the U. S. Army, which for years has extensively used it on concrete structures and fortifications along the sea-coast. As a rule, two coats are applied on concrete gun platforms, sand being sprinkled on the second coat to prevent slipping when walked on.

This paint is a standard in battery room and other electrical work and resists the sulphuric acid. It is also extensively used on the backs of retaining walls and bridge abutments. It sheds water to footings where it can be drained off.

Stainproofing Cut Stone

Hydrex Dampproofing Paint is widely used for coating the back of cut stone, Bedford stone, etc. The back, top, sides and bottom of the stone to within one inch of the face are coated with the paint. It has been extensively used for this purpose in U. S. Post Office buildings, office structures, churches, libraries, etc.

Covering Capacity

One gallon of Hydrex Dampproofing Paint will cover from 100 to 125 square feet of stone, concrete or brick surface.

Dampproofing Walls*

Method No. 2

Hydrex (*Bitumen*) Compound and Hydrex Waterproofing Primer

Hydrex Compound

Hydrex Compound is a tough, elastic, waterproof *bitumen*. The chief characteristic which has made Hydrex Compound famous is its quality to retain its consistency and flexibility under varying degrees of temperature. In cold weather it does not become brittle (like coal tar pitch and the ordinary asphalt), nor does it ooze and run in hot weather. It retains its consistency on a hot roof in the tropics and also in the freezing temperature of a refrigerator car or cold storage building.



Hydrex Compound is melted and applied hot. It is used for dampproofing, *acidproofing* and insulating—foundation walls, bridge abutments, retaining walls, floors of battery rooms, mill floors, bridge floors, bases of steel columns, floors in refrigerator cars and cold storage plants, making mastic and also for cementing together layers of felt, burlap and cloth for waterproofing and roofing.

Dampproofing Foundation Walls, Etc.

In the best practice, the outer surfaces of basement walls, retaining walls, bridge abutments, etc., are

first coated with Hydrex Waterproofing Primer, applied cold with a brush. The primer, being a liquid bitumen applied cold, is carried by its strong solvent into the surface pores of the wall, and forms, when dry, a natural base and a thorough bond for the Hydrex Compound ("C" Grade), which is later swabbed on hot with roofing mops.

If a hot bitumen is applied to a surface which has not been treated with Hydrex Waterproofing Primer, the bitumen does not properly bond to the surface. The compound apparently takes hold, but does not in fact. Coal-tar-pitch or the ordinary asphalt when so applied will later flake off or come off in patches.

Therefore, before applying Hydrex Compound to a wall, it is the best practice, safer and well worth the small additional cost, to first apply a bonding coat of Hydrex Waterproofing Primer. The compound then tenaciously adheres to the wall and forms a thick, flexible, insulating and dampproof coating, which is thicker than ten coats of the ordinary dampproofing paint. This coating sheds any water or moisture down the wall to its base, where if the soil is of sand, the water rapidly passes off. (This method of *dampproofing* walls is the next best method to the use of "The Membrane Method" of *waterproofing*; i. e., using several layers of Hydrex Felt and Compound.)

Retaining-wall steps should not be dead flat, but sloped so that water will drain backward away from and not settle in the angles.

SPECIFICATION: When the foundation walls are dry, apply on the exterior surface a thorough coating of Hydrex Waterproofing Primer. When the Hydrex primer is dry and set, apply over it with mops a heavy coating of hot Hydrex compound [made by The Hydrex Felt & Engineering Co., New York].

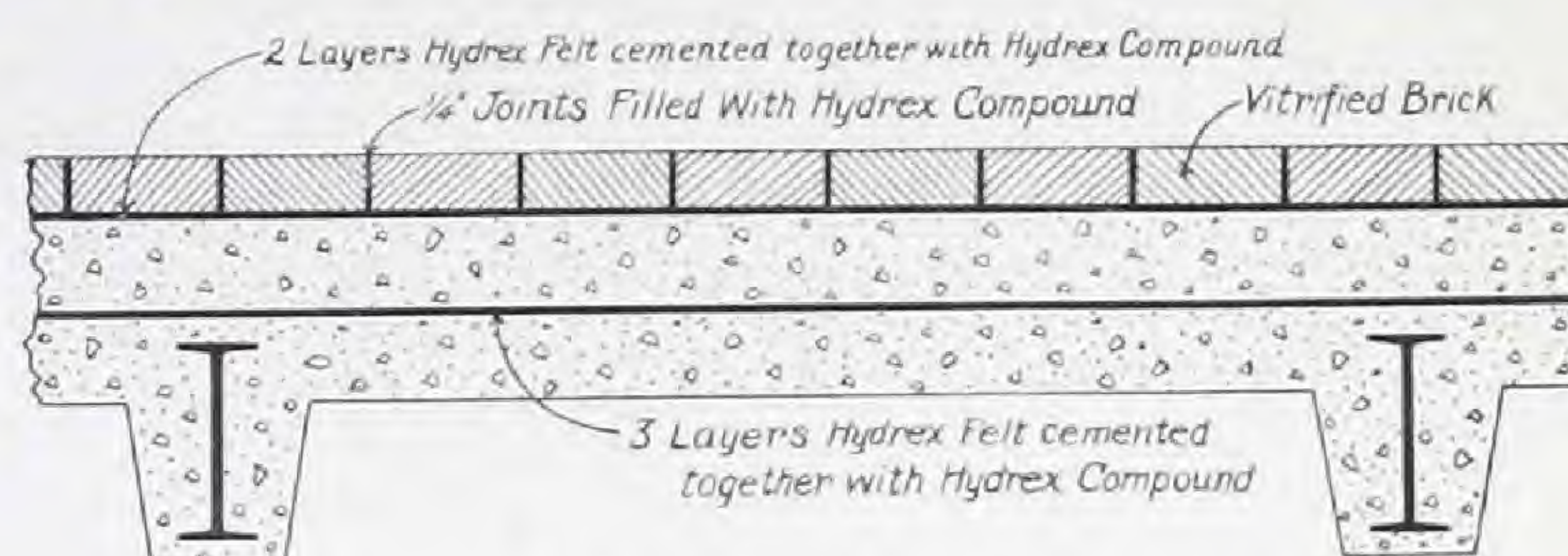
* WATERPROOFING VS. DAMPROOFING; the difference between the two. See page 7.

Waterproofing Floors of Battery Rooms, Sugar Refineries, Mills, Etc.

HYDREX COMPOUND is widely used in battery room floors, because it is not injuriously affected by sulphuric acid solutions. For such work it is, therefore, specified as a standard by electrical experts. It prevents the sulphuric acid solutions from penetrating the concrete floors. It is used by the leading electric light companies, storage battery companies and electrical engineers of the United States and abroad.

Battery room floors have usually a wearing surface of tile or brick, the joints being filled with Hydrex Compound. Under the brick or tile is an acid-and-waterproof membrane or mat composed of three layers of HYDREX WATER-PROOF FELT cemented together and coated with the hot Hydrex Compound, in which coating the brick or tile are carefully and neatly imbedded. For battery room floors, etc., specify Hydrex Compound "B" Grade.

Hydrex Compound is used in sugar refinery floors because sugar acid does not affect it.



Acidproof Floor Construction

It is also used in the upper floors of mills, factories, warehouses, etc., in connection with Hydrex Felt, as a waterproof interlining between double wooden flooring. In case of water from fire hose or sprinklers turning loose on an upper floor, the waterproofed floor will protect the valuable stocks stored on lower floors. HYDREX FELT and COMPOUND are endorsed for waterproofing floors by insurance companies.

Mastic Acidproof Floors

For Mastic Acidproof Floors in battery rooms and similar conditions HYDREX COMPOUND ("B" grade) has proved to be unequalled and is a recognized standard.

We quote the following from the letter of a prominent Electrical Engineer, who has for many years used the Compound:

"THE HYDREX COMPOUND is non-absorbent, so that all acid which rests on the floor finds its way to the drain instead of permeating through to the underlying cement floor, as is the case with other asphalt compounds which we have used for the purpose.

"Brick floors with the joints poured with the compound have in many instances proven satisfactory, but such floors must be very skilfully and carefully laid and are very much more expensive. One of the chief disadvantages in a

brick floor is in its many joints and the possibility of leaks occurring, which are not readily found because of acid traveling under the bricks from a defective joint at one point to a flaw in the waterproofing under the brick at another point and finally attacking the cement base at quite a distance from the original defect between the bricks. This requires considerable ripping up of the floor to find the defective fill between the bricks.

"With a HYDREX COMPOUND mastic floor there is small chance for a defective spot because of the thickness of the layer of compound, the method of laying it and the ease with which any defect is seen, the leak localized and the repairs made."

Hydrex Compound ("B" grade) for mastic floors is mixed usually by volume 1 to 3 (according to firmness of floor required) with white sand or other acidproof mix.

Refrigerator Cars, Cold Storage Buildings, Etc.

HYDREX COMPOUND is odorless and does not convey taint to food products. It has, therefore, long been used in many thousands of refrigerator cars as a flexible, waterproof coating over the insulation in the car floor and roof. The range of temperature in refrigerator cars is exceedingly great, varying from freezing, when the cars are iced, to over 100° F. when the cars are without ice and standing in the hot summer sun. There can be no severer test than this of the special and superior quality of Hydrex Compound to retain its consistency and serviceability. It has been used in more than *thirty thousand cars* and is standard for refrigerator cars of the large beef packers, dairy lines and many railroad systems.



Waterproofing upper floors in United Drug Co.'s Building, Boston, Mass., with Hydrex Waterproofing Felt cemented together with Hydrex Compound

Electrical Work, Junction Boxes, Insulating Steel Column Bases, Etc.

HYDREX COMPOUND adheres tenaciously to steel. The bases of steel columns, especially in building construction, are protected with Hydrex Compound poured hot inside of the bases up to a level with top of shoe plates, to insulate against electrolysis and to permanently exclude air and moisture. The column bases in the Singer Building, New York, were so protected. The basement floor and walls of

this celebrated building are also waterproofed with three layers of Hydrex Felt cemented together with Hydrex Compound.

Hydrex Compound is standard for electrical work, junction boxes, etc.; also used for coating and stopping leaks in metal roofs, tanks, etc. Plumbers use Hydrex Compound "A" Grade for sealing leaks in copper tanks where solder and other materials fail under stress.

Protection Against Electrolysis, Waterproofing Foundations, Swimming Pools, Subways, Retaining Walls, Etc.

The largest and most extensive use of Hydrex Compound ("C" Grade) is for cementing together layers of felt, burlap or cloth for protecting against electrolysis and waterproofing foundations, reservoirs, subways, floors, swimming pools, roofs, bridge floors, etc.

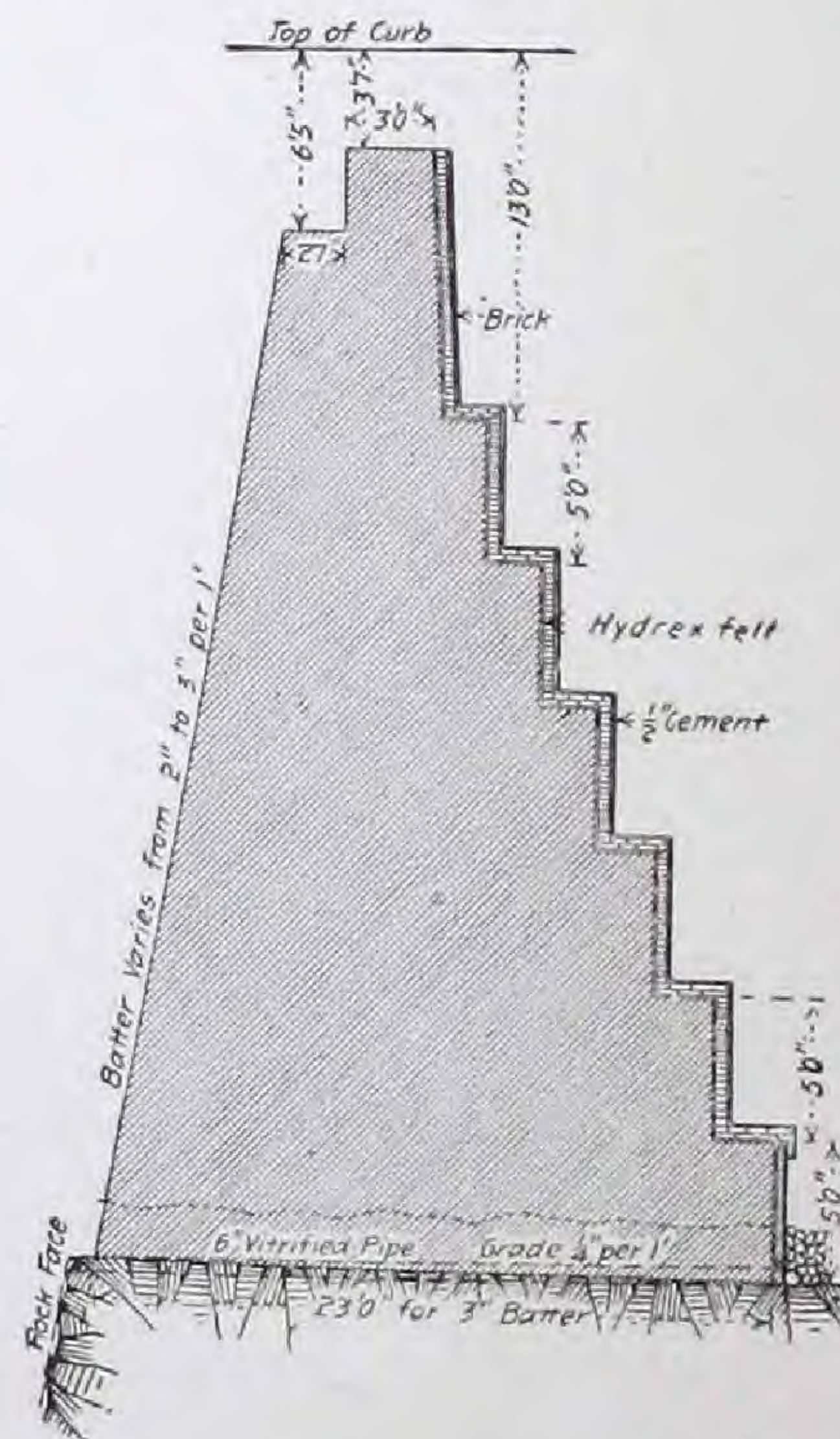
Hydrex Compound has been used (in connection with HYDREX WATERPROOFING FELT) on more railroad bridge floors than any other single waterproofing material. This is because of its characteristics, toughness and flexibility. It yields, without cracking, to bridge vibration, the impact of heavy

railroad traffic, etc. There can be no stronger test and endorsement of the value and serviceability of Hydrex Compound.

Many millions of dollars' worth of buildings, bridges and other structural work are protected and waterproofed with Hydrex Compound and Hydrex Waterproofing Felt, particularly under severe water pressure conditions. At the Panama Canal, for example, Hydrex Compound and Hydrex Waterproofing Felt were specified, purchased and used by the United States Government as "The only kind that will meet the requirements of the service."



Swimming Pool in Y. M. C. A., Germantown, Pa. Waterproofed with four layers Hydrex Felt cemented together with Hydrex Compound, used in more swimming pools than probably any other single waterproofing material.



Cross Section of Retaining Walls of the Penna. R. R. Terminal, New York, showing Hydrex Waterproof Felt on back thereof, about 14 years ago. Nearly 15,000,000 feet of Hydrex Felt were used on Penna. Terminal and Tunnels.

Built-up Roofing with Felt, Slag, Tile, Etc.

HYDREX COMPOUND for cementing together three or more layers of felt for "built-up" roofing, is more expensive than coal tar pitch or the ordinary asphalt, but gives much better results and is well worth the difference in cost, particularly under special conditions. Coal tar pitch and the ordinary asphalt become, as is commonly known, exceedingly brittle in cold weather and soft in hot weather, so as to ooze and run, clogging roof leaders and causing weak spots along the flashing in the corners and angles at the base of coping

walls where leaks most usually occur. Hydrex Compound does not ooze and run, but retains its consistency.

Built-up roofs composed of from three to five layers of Hydrex Waterproofing Felt, cemented together with Hydrex Compound have for many years been used in the tropics—Cuba, South America and the Philippines, and are giving as good service to-day as when first applied years ago. The severe tropical heat soon destroys other bitumen products.

How Shipped and Applied

HYDREX COMPOUND is shipped in barrels and iron drums. To be used it is cut up into small lumps with an axe, and melted in 50- or 100-gallon asphalt heating kettles until the compound is so liquid that it will run quickly off a stick like oil. The compound is applied hot, with the customary waterproofing or roofing mops. Heat in the compound, and quickness and thoroughness in swabbing it on the surface, give the best results.

Three gallons of Hydrex Compound properly liquefied and applied will cover 100 square feet of surface.

HYDREX Waterproofing PRIMER is shipped in 25- and 50-gallon barrels. It is of the consistency of paint, and is applied COLD, with a brush. On large surfaces use a three- or four-knot brush with a long handle.

One gallon of Hydrex Primer will cover over 200 square feet of concrete surface.

Waterproofing vs. Dampproofing

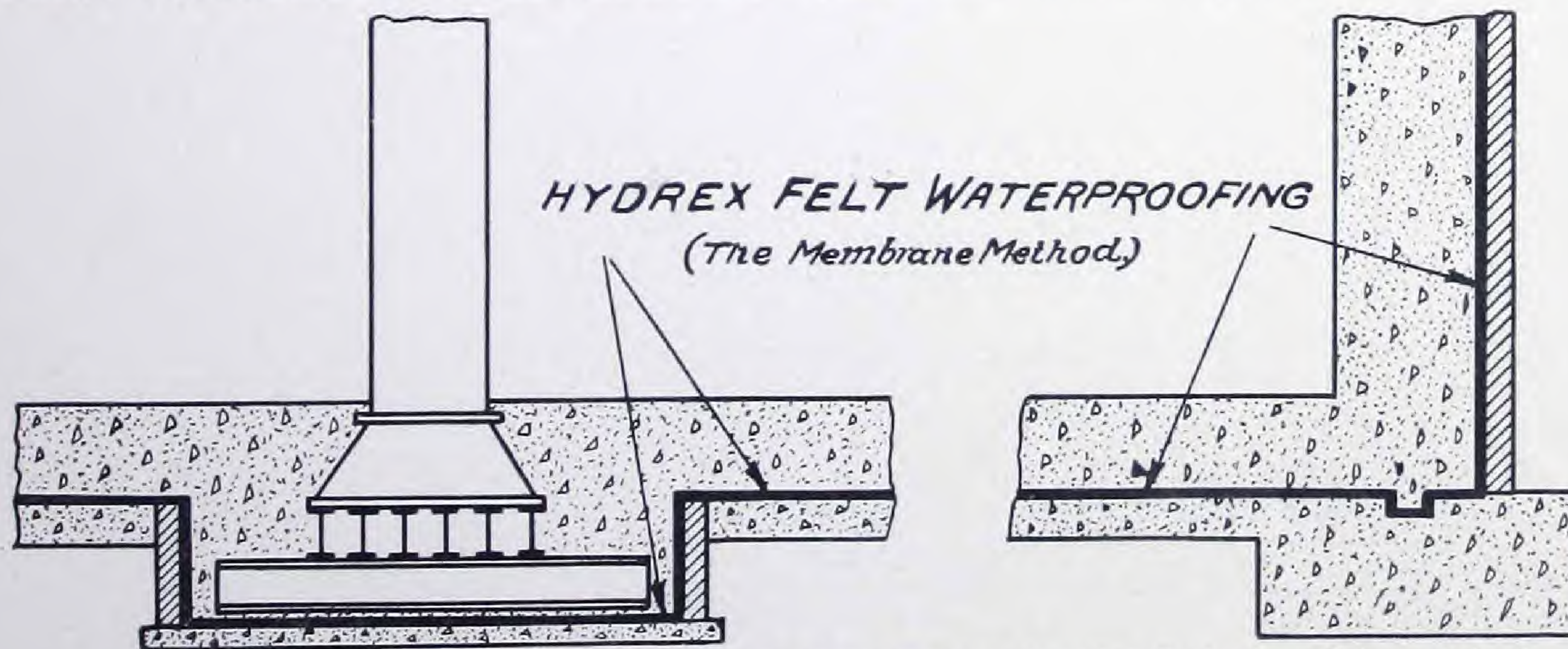
The Difference Between the Two

Dampproofing a wall so that water can be shed *down* the wall is quite different from waterproofing a wall against *water pressure*. To resist water pressure this company has never advised using a coating of paint or even of hot bitumen, but has always recommended "*The Membrane Method*" of waterproofing, *i. e.*, the use of several layers of Hydrex Waterproofing Felt cemented together with the (hot) Hydrex Compound.

Modernized waterproofing means insulation, especially against electrolysis, particularly in the construction of large steel buildings. (See sketch below.) Hydrex Felt is a satu-

rated and *coated* felt, which by practical and laboratory tests has been proved to be a non-conductor, its insulation resistance, even in *one thickness*, being over 200,000 megohms.

A thick membrane composed of alternate layers of Hydrex Waterproofing Felt, cemented together with (hot) Hydrex Compound, prevents electricity and moisture from reaching the steel in concrete, which can contract and expand, settle and crack, without the slightest injury to the thick, flexible, waterproofing stratum, which is a thing apart from and independent of the surface waterproofed.



Waterproofing membrane under grillage and basement floor and up the exterior surface of outside walls, forming a Hydrex waterproof, electrolysis proof "box" under and around the entire basement

Manufacturers of Hydrex Waterproof [Sheathing Paper, Deadening Felt, Cloth, Canvas, Burlap, Paints, etc.]

